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How Wilderness Visitors Choose Entry Points and Campsites

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RESEARCH SUMMARY

The location choices made by wilderness visitors affect both impacts and solitude, and managers often seek to modify the resulting use distributions. Such attempts have had mixed success. To increase understanding of location choices, visitors who camped in the Bob Marshall Wilderness complex in Montana were studied, focusing on their general decision process, the role of site attributes, and how these varied with visitor characteristics.

Most visitors were looking for new places to visit, hikers more than horse users, but those looking for new places did not put more effort into location choices. Experienced wilderness visitors who were new to the Bob Marshall spent the most time and effort deciding locations. Few visitors contacted the Forest Service for information to aid in their choices, regardless of trip length. Planning usually began a few weeks or more before trips, earlier for longer trips. Maps were the main source of new information. Many site attributes attract visitors, but good hunting and fishing top the list. Many visitors consider alternative trailheads and campsites before they make a final choice. The location of campsites affects choices more than their condition, but hikers and horse users respond to campsite conditions differently. Persons who place a high value on wilderness and solitude put only a little more effort into choosing locations. Campers who want campsites out of sight and sound of other campers reject campsites because they lack seclusion more often than those who prefer less campsite solitude. The longer the trip, the more effort campers make in choosing locations.

Management implications support many current programs and suggest some changes. Managers need to contact more visitors when they are planning trips, especially horse users and hunters. These contacts need to be used to full advantage. Good maps with key information are essential. Minimum-impact education needs to make horse users more aware of resource impacts. Firerings have little affect on campsite acceptability, and efforts to eliminate all of them may be questionable. Information on a variety of site attributes needs to be provided to influence visitors' choices. Camping setbacks from water may conflict with campers' common rejection of campsites "too far from water." Predetermined itineraries, required in some National Parks, make it impossible to examine several campsites before choosing one, which is common behavior. Diverse trail systems best match visitor behavior and preferences.

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INTRODUCTION

The location choices made by visitors have important implications for wilderness management. The cumulative effect of visitors' choices produces recreational use distributions, and many studies show that these are typically very uneven. A small proportion of access points accounts for most use, and use of trails or water routes is very uneven. Some campsites are heavily used while others are rarely camped on (Hendee and others 1978, chapter 13; Lucas 1980; Roggenbuck and Lucas 1987; Stankey and others 1976). This is important because use distributions strongly affect the two most critical wilderness qualities—natural ecosystems and special visitor experiences.

Recreational use distributions often do not match variation in the ability of areas to support use (Cole 1987). Mismatches between places chosen for camping in wilderness and site durability are thought by many managers to be particularly serious, with fragile sites sometimes receiving use they are poorly suited for.

In addition, campsite location choices can affect the sense of isolation and solitude of wilderness visitors, and seclusion at campsites is the most important aspect of solitude for most visitors (Stankey 1973). Highly uneven use of trailheads contributes to campsite solitude or congestion, and more directly, to numbers and types of encounters between parties and the resulting feelings of solitude. In a broader sense, location choices by visitors, both good and bad choices, strongly influence the quality of their experiences (McCool and others 1985).

As a result of the impacts of visitor distributions on resources and visitor experiences, wilderness managers often want to modify the location of recreational use. This is a common objective of both education programs and recreation regulations.

Education and information have been used to try to shift visitors' entry point selections with varying success (Canon and others 1979; Krumpe and Brown 1982; Lime and Lucas 1977; Lucas 1981). Education and information have also been used in one wilderness in North Carolina to influence visitors' choices of camping areas, with some success (Roggenbuck and Berrier 1981). Other attempts have been made to provide general guidelines to help visitors choose campsites that will reduce their impacts (Cole and Benedict 1983; and various "minimum-impact" education materials), but it is not known how much this has been tried or with what success.

Regulations are also commonly used both to control the amount of use at trailheads and areas they serve through use rationing and to prohibit camping in certain types of places, most often within an established distance of lakes and sometimes streams and trails as well (Washburne and Cole 1983). Specific areas also are closed to all camping in some areas—Glacier and Cold Lakes in the Mission Mountains Wilderness in Montana and all lake basins in the Pecos Wilderness in New Mexico, for example. Some areas, particularly a number of National Parks, require visitors to choose each campsite they will use each night before they begin their trip and then stick to this fixed itinerary—a policy that is unpopular with National Forest wilderness visitors (Lucas 1985a), but how National Park visitors view fixed itineraries is not known.

Most of these attempts to alter wilderness recreational use patterns suffer from a lack of knowledge of the behavior they seek to influence or control. This is reflected in the poor success of many management efforts to redistribute visitor use. Results of education/information programs have varied from success—tripling the number of visitors choosing lightly used trails in Yellowstone National Park (Krumpe and Brown 1982)—to little or no effect (Canon and others 1979; Schomaker 1975). Regulations also vary widely in effectiveness and often fall short of expectations. For example, about half of the campers in the Eagle Cap Wilderness in Oregon were reported to be violating prohibitions on camping close to lakes (Lucas 1983). Most campers in Glacier National Park, which requires fixed itineraries, are said by managers to be in the wrong campsite after 5 or 6 days.

Managers probably could more effectively influence or modify use distributions if they had better answers to questions such as: How do visitors make location choices? who makes decisions? when do they decide? what factors do they consider? and which are most important to them? Managers could better decide between education and regulation if they understood what sort of location-decision process they were dealing with. Managers using educational techniques could better tailor messages and their delivery to visitors with an improved understanding of how different types of visitors go about choosing places to visit and camp.

PAST RESEARCH

Wilderness location choice processes have been little studied. Two general approaches to studying recreational location choices have been used. Some are based mainly on interviews with campers, asking them what they looked for in a campsite. Other studies analyze the attributes of the sites visitors choose to infer the site qualities that characterize desirable recreational use locations.

Frissell and Duncan (1965) reported that nearly half of the respondents in the Boundary Waters Canoe Area Wilderness said they looked at more than one site before making their final choice. The most common reason for

rejecting a site was that it was too small for the party's tent or tents. When questioned about an ideal campsite, island location was mentioned by 45 percent, flat tent spots by 39 percent, firewood availability by 30 percent, good landing area for canoes or boats by 27 percent, and protection from wind by 24 percent. Functional characteristics were far more influential than esthetics or impact levels. Frissell and Duncan concluded that, beyond a preference for islands, "choice of a campsite seems to be controlled largely by what is conveniently available when it is time to stop for the day." They also estimated that 63 percent of campsites were on islands, and 91 percent were in pine forest types.

Hutchinson and Lime (1972) also studied campsite choices in the Boundary Waters Canoe Area Wilderness. They collected data by means of trip diaries given to visitors at the beginning of trips. Visitors usually chose among a few sites in the general vicinity. Boat campers camped earlier and were influenced more by closeness to fishing spots. Islands and peninsulas were popular.

Clark and Stankey (1986) classified site attributes in Southeast Alaska as requisites, facilitators/attractors, and constrainers/detractors. The Alaska Public Survey indicated "favorite sites" for dispersed recreation had the following attributes: remoteness; beaches, boat access, and moorage; salt water fishing; good beachcombing, hiking, and walking opportunities; wildlife and birds; undisturbed natural areas; places to get away from others; and scenery. Esthetic and natural qualities are prominent on this list, along with functional attributes. Based partly on this and on other information, five requisite attributes were selected (landslope, tidal area, bathoslope, shoals, and wind exposure) to identify potential recreation sites from air photos and maps. Field checking has indicated good success in identifying usable sites, but they may or may not have been used by recreationists so far. Only about 20 percent of the shoreline in a case study area was classified as usable.

In Wyoming, Heberlein and Dunwiddie (1979) reported use of campsites at one popular wilderness lake over a 33-day period varied from 0 to 14 nights, based on observations. The authors were unable to relate campsite attributes to selection by campers, except to a subjective "attractiveness rating." Experienced campers selected sites isolated from other campers, however. Here, only esthetic factors emerged—not functional attributes.

Zuckert (1980) found that popular campsites near Charlotte Lake in Kings Canyon National Park, CA, tended to be close to entry points, close to trails, highly visible, and worn. Visitors spent little time searching for campsites or seeking secluded sites. Experienced campers selected somewhat different sites than inexperienced visitors. Perceptions of overuse and crowding explained little about choices.

Brunson (1989) compared the importance ratings of campsite attributes by three types of visitors to a portion of the Alpine Lakes Wilderness in Washington. Responses to questions about primary activity were used to classify visitors as campers, hikers, or climbers. Campers rated solitude attributes highest, followed by functional attributes. Hikers reversed that order. Climbers were most concerned with attributes that facilitated climbing, such as view of the mountain to be climbed and proximity to climbing routes.

Several studies have examined attitudes about acceptable wilderness campsite conditions (Martin 1987; Shelby and Harris 1986). These studies have not included campsite selection, but they have implications for choice and satisfaction.

Mackay (1987) analyzed the role of recreation specialization on desires for information about recreation sites and preferences for site characteristics for Montana hikers and anglers. Information desired did not vary; site preferences did. Mackay also reviews a wide variety of choice models. Williams and Huffman (1986) related specialization to trail selection as it relates to use redistribution. Similar to Mackay (1987), they found difference in site preferences but not in information use.

Other studies have examined other types of recreation location choices and other kinds of human activity. They are not closely related to wilderness trail and camp choices and will not be reviewed here.

OBJECTIVES

This study has three major objectives:

1. Determine the major characteristics of visitor choices of trailheads and campsites (including such factors as decision lead time, sources of information, extent of consideration of alternatives, and preferences for variety/novelty vs. familiarity).
2. Explore site attributes that are important to visitors in choosing some trailheads and campsites and rejecting others.
3. Determine how choices and attribute importance are related to major visitor characteristics (such as experience, method of travel, local vs. out-of-state residence, and hunting vs. nonhunting).

METHODS

The data were collected as part of a repeat survey of visitors to the Bob Marshall Wilderness complex in 1982. The Bob Marshall Wilderness complex (BMWC), located in northwestern Montana, consists of three contiguous National Forest wildernesses—the Bob Marshall, the Great Bear, and the Scapegoat (fig. 1). The three areas straddle the Continental Divide and total more than 1.5 million acres. Four National Forests and five Ranger Districts administer portions of the total area.

Other data from this study were analyzed to identify trends, from 1970 to 1982, in use patterns, user characteristics, attitudes, and preferences, and were published (Lucas 1985b). The 1982 survey also included a section on trailhead and campsite choice—18 questions in all. These had no 1970 counterparts and thus were not part of the trend analysis. Other data collected on visitors and their activities provide information that enables analysis of the association of choice behavior and visitor characteristics.

The details on sampling procedures are in Lucas (1985b). The general approach was a mail questionnaire to a sample of people contacted in the field at about 50 trailheads, in person at most entry points and with special registration stations at lightly used trailheads.

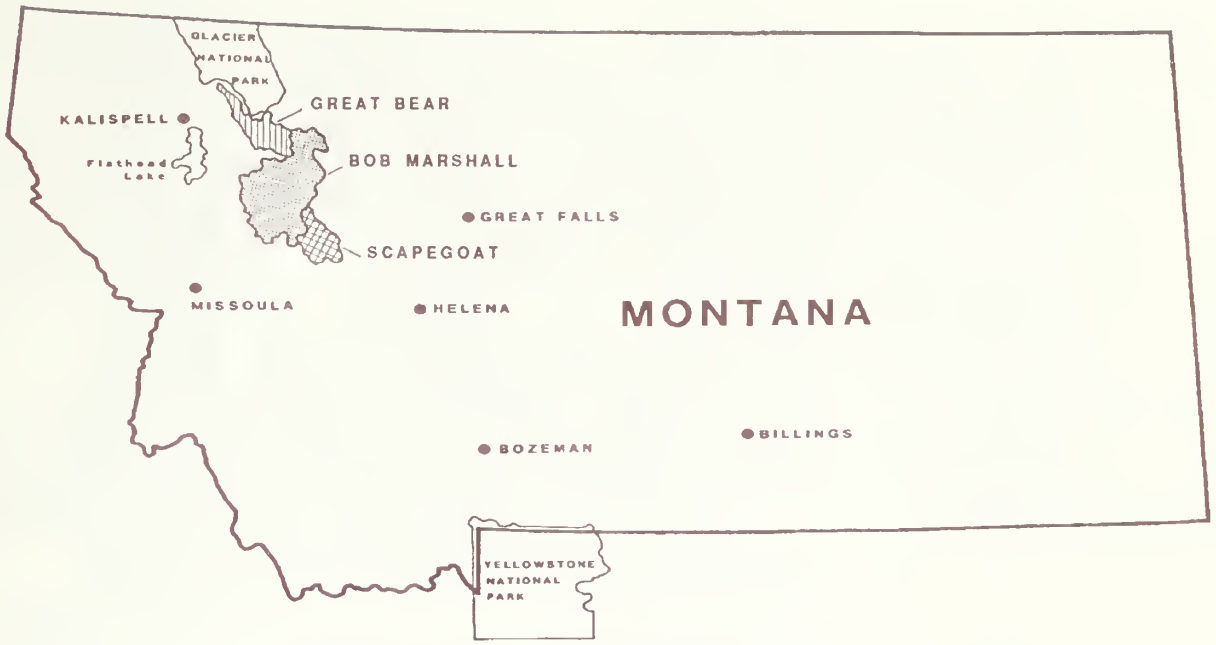

Figure 1—Location of the Bob Marshall, Great Bear, and Scapegoat Wildernesses.

Both summer and fall visitors were sampled. Adult (16 or older) individuals were sampled, rather than groups or group leaders. Day-users and campers were both included, but only campers' location choices will be analyzed in this paper because day-users visit so little of the large wilderness, were not involved in campsite choices, and have less potential impact.

The total sample consisted of 785 questionnaires completed and returned. The rate of return was 82 percent. Minor trailheads were oversampled, and questionnaires were weighted less than 1 to equalize all responses. The weighted sample totaled 531. The weighted total for campers was 413. The three areas will be analyzed as one unit.

Data are presented for hikers, horse users (including horseback riders and a few hikers using packstock—only about 4 percent of all horse users), and rafters. Rafters usually either flew into the Shafer airstrip in the Great Bear Wilderness to start float trips down the Middle Fork of the Flathead River or went in on horses to float the South Fork of the Flathead River in the Bob Marshall Wilderness. The rafter sample is small—18 or fewer respondents in most tabulations—so data reported separately for them should be treated cautiously. Sample size for hikers is 209 and for horse users 186. Totals vary among tabulations because of the varying focus of questions (for example, only campers involved in choosing campsites are analyzed in some tables) and a few incomplete questionnaires.

THEORETICAL PERSPECTIVE

There are a number of theoretical concepts relevant to recreation choice behavior, many of which are described and evaluated in Stankey and McCool (1985). Some theoretical models assume perfect knowledge of settings and their attributes and complex balancing of positive and negative attributes. Some assume that decisions are determined by environmental conditions and people respond passively. Other models assume partial knowledge and more limited rationality (Watson and others in press). Cognitive development models are commonly used in this approach; these models focus on the information an individual has and how the information is used to make choices. Visitors are viewed as actively perceiving and internally shaping the environment around them to make choices (Watson and others in press). Increasing cognitive development leads to increasingly complex, discriminating preferences and information processing (McCool and others 1985).

This cognitive development framework suggests that, in general, the investment of effort in gathering information and making location choices increases as involvement with wilderness and commitment to it increase. The underlying theory is described in more detail in Lucas (1981) and is portrayed schematically in figure 2.

This general theoretical framework guides the following analyses, but formal hypotheses are not tested. The location choice process is complex, poorly understood, and this study can only suggest some of the important aspects of visitor choices of trails and campsites.

RESULTS AND DISCUSSION

The general location choice process will be described first. Factors related to choices will then be discussed. Then the data on the role of various site attributes and differences among different types of visitors will be described. Implications for management will be discussed in a subsequent section.

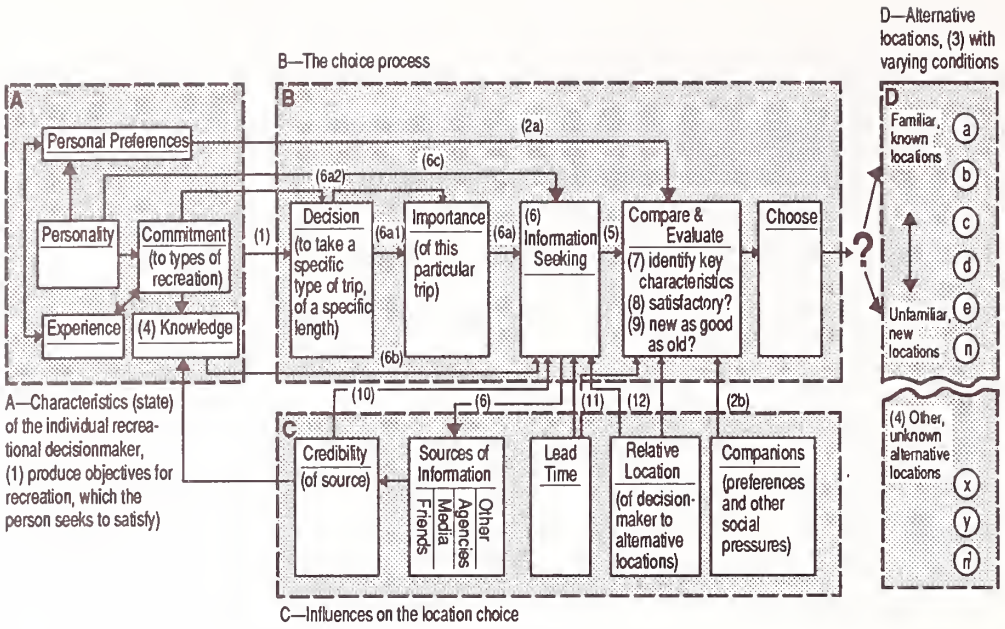

Figure 2—The relationship among the components of recreational location choice behavior. (Numbered components and relationships correspond to description of the theory in Lucas 1981.)

The General Location Choice Process

In choosing places to visit, some visitors prefer to visit new areas each time, while others enjoy going back to old familiar places. Most people do some of both (table 1), but more people prefer novelty than familiarity. The differences among visitors with different methods of travel are statistically significant; specifically, visitors traveling with horses are more often familiarity seekers than hikers.

Most wilderness campers do not contact the Forest Service for information before their visit (table 2). Less than one-fourth seek information; hikers are most likely to contact the Forest Service, horse users least likely, in part because many employ outfitters and rely on them for needed information. The differences are statistically significant.

The most common way of contacting the Forest Service is to visit an agency office (65 percent of those who contacted the Forest Service). More than one-fourth telephoned, and one-eighth wrote, with some contacting the Forest Service in more than one way. Differences in types of contacts among visitors traveling various ways are not large.

Trailhead Choices—Most of the sampled visitors (59 percent) chose or helped choose a trailhead. Hikers were more often involved than horseback riders (65 percent compared to 52 percent), mainly because outfitters often selected trailheads for horse users. Rafters were also less likely to choose a trailhead (56 percent), again because of a major role for outfitters. The differences among travel methods are statistically significant.

Trailhead choices were usually made at least a week before the trip (table 3), and 39 percent were made a month or more before the trip. Visitors using horses plan farther ahead than hikers. Rafters plan even farther ahead. This probably reflects both the greater role of outfitters in horse and raft travel and the more involved preparations necessary for horse travel or river floating. Differences are statistically significant.

Visitors learn about trailheads in many ways, but studying maps is the most common, reported by close to half of all visitors (table 4). Information from friends and personal knowledge from previous trips are also common, while all other sources are rarely used. Forest Service employees ("rangers") are cited by only 5 percent of visitors, and very rarely by anyone except backpackers. There are other substantial and statistically significant differences among visitors traveling various ways (table 4). Hikers study maps the most and use written sources most, horse users rely largely on previous experience, and rafters depend mainly on information from friends.

Reasons for choosing trails were varied, and most people listed more than one (table 5). The most common reason was access to opportunities for good fishing and hunting (37 percent). A wide range of "other" answers were next most common, particularly for hikers. Most were one-of-a-kind responses, often site specific, but the attraction of loop trails and the problem of snow on high country trails were each mentioned several times. Hikers differed substantially from horse users for three reasons. Hikers more often cited "a new area" and "less crowded," and less often mentioned "close to home." The small sample of rafters gave very different reasons, frequently citing only fishing and hunting, familiarity, and "less crowded." Differences among travel methods are statistically significant.

About one-third of the respondents reported considering other, alternate trailheads in addition to the one they

Table 1—Preferences for novelty or familiarity; percentage of total for each method of travel (omitting first-time wilderness visitors)[1]

Prefer to visit:	Method of travel			Total
	Hikers	Horse users	Rafters	
New areas	31	15	27	24
Revisit same areas	11	20	9	15
Both of above	58	65	64	61

[1] $n = 314$ (weighted); $\chi^2 = 12.3261$; $p = 0.02$.

Table 2—Percentage of total campers contacting the Forest Service for information about the wilderness before their trip; percentage of total for each method of travel[1]

Did you contact Forest Service?	Method of travel			Total
	Hikers	Horse users	Rafters	
No	67	85	76	76
Yes	33	15	24	24

[1] $n = 400$ (weighted); $\chi^2 = 14.6791$; $p = 0.001$.

finally chose to visit. Hikers considered alternates slightly more than horse users (nonsignificant), and rafters much less (only 9 percent).

Reasons for rejecting alternate trailheads were numerous and diverse (table 6). None stood out sharply, but the most common, all ranging from 10 to 13 percent of the total, were "too far from trailhead to destination in the wilderness," "too crowded," "too long a drive to reach the trailhead," "trail too difficult or steep," and "time constraints." There were no statistically significant differences among different travel methods.

Campsite Choices—More than half of all campers choose the first campsite they find in the general vicinity of where they intend to stay either most or all of the time (table 7). At the other extreme, about one-fifth say they always consider more than one campsite before choosing. Looking at it in another way, table 7 implies that 79 percent of the campers rejected a campsite at some time on their visit to the Bob Marshall Wilderness complex. Differences among travel methods were small.

When specifically asked, 25 percent of the campers reported rejecting a campsite because of its condition (table 8) and 37 percent because of its location (table 9). Backpackers rejected campsites most often because of both condition and location, and rafters least often. In both cases, the differences among travel methods were statistically significant.

The most common conditions that caused campers to reject sites differed sharply among visitors with different travel methods (table 10). Hikers said horse manure, too much bare ground, and litter were the conditions they found unacceptable enough to pass up a site. Scarce grazing for stock was the only reason reported often by horse users who rejected a site, and the main reason given by hikers—horse manure—was almost unmentioned. The other common hiker reasons, bare ground and litter, were cited far less often by horse users. Only four rafters rejected sites because of condition, but too much bare ground was the most common reason.

In contrast, problems with location of campsites leading to rejection (table 11) differed little among hikers and horse users. The main reasons were: location too close to a trail, too far from water, and too close to other campsites. The first and third reasons suggest solitude seeking; the second is a functional attribute. Only two sampled rafters rejected campsites due to location, in both cases because other campsites were too close.

Table 3—Timing of trailhead choices by campers in the Bob Marshall Wilderness complex; percentage of total for each method of travel[1]

Lead time	Method of travel			Total
	Hikers	Horse users	Rafters	
Less than 24 hours	16	4	0	11
24 hours to 1 week	25	23	0	24
1 week to 1 month	24	29	9	26
More than 1 month	35	44	91	39

[1] $n = 258$ (weighted); $\chi^2 = 22.6511$; $p = 0.001$.

Table 4—Sources of information about trailheads reported by campers involved in choice; percentage of total respondents for each method of travel[1]

Source of information	Method of travel			Total answers
	Hikers	Horse users	Rafters	
Studied a map	52	36	18	44
Told by friends	32	36	73	35
Been there before	23	47	18	33
Forest Service employees	7	2	0	5
Guidebooks	7	3	9	5
Magazines	8	1	0	4
Newspapers	1	1	0	1
Signs	2	0	0	1
Other	11	11	18	11
Don't remember	2	0	0	1

[1] $n = 255$; $\chi^2 = 41.0362$; $p = 0.005$.

Table 5—Reasons for choosing the trailhead used; percentage of total camper respondents who were involved in trailhead choice for each method of travel[1]

Reasons	Method of travel			Total answers
	Hikers	Horse users	Rafters	
Access to good fishing or hunting area	36	38	73	37
Been there before, familiarity	23	26	73	24
Close to home	17	30	9	23
Easy trail	20	22	9	21
A new area, variety	22	17	10	19
Less crowded	21	14	55	19
Other reasons	36	27	27	31

[1] $n = 240$ (weighted); $\chi^2 = 31.9271$; $p = 0.001$.

Table 6—Reasons for rejecting other trailheads, percentage of total campers who rejected a campsite; percentage of total for each method of travel[1]

Reasons	Method of travel			Total answers
	Hikers	Horse users	Rafters	
Too far to destination from trailhead	12	16	0	13
Too crowded	14	6	0	11
Too long a drive to trailhead	8	16	88	12
Trail too difficult or steep	8	16	0	11
Time constraints	12	6	0	10
Road too poor	8	0	0	5
Wanted to visit new area	6	3	0	5
Lack of fishing or hunting	2	3	0	2
Problems for horses	0	3	0	1
Private property, access closed	0	3	0	1
Other	25	39	12	29

[1] $n = 83$; $\chi^2 = 19.6700$; $p = 0.80$ (NS).

Table 7—Answers to "Did you take the first available campsite you found in the general area where you intended to stay?"; percentage of total respondents who were involved in the choice for each method of travel[1]

Answer	Method of travel			Total
	Hikers	Horse users	Rafters	
Always	21	19	33	21
Usually	28	37	33	32
Sometimes	30	26	14	27
Never	21	18	20	20

[1] $n = 347$; $\chi^2 = 5.2739$; $p = 0.50$ (NS).

Table 8—Proportion of campers who rejected an available campsite because of its condition; percentage of total for each method of travel[1]

Rejected a campsite	Method of travel			Total
	Hikers	Horse users	Rafters	
No	68	82	92	75
Yes	32	18	8	25

[1] $n = 361$; $\chi^2 = 10.8627$; $p = 0.005$.

Table 9—Proportion of campers who rejected an available campsite because of its location; percentage of total for each method of travel[1]

Rejected a campsite	Method of travel			Total
	Hikers	Horse users	Rafters	
No	57	69	86	63
Yes	43	31	14	37

[1] $n = 360$; $\chi^2 = 8.6011$; $p = 0.05$.

Table 10—Campsite conditions that caused rejection of campsites; percentage of total rejecting a campsite because of condition for each method of travel[1]

Conditions causing rejection	Method of travel			Total
	Hikers	Horse users	Rafters	
Horse manure	55	1	33	39
Bare ground, erosion	42	20	67	38
Litter	40	28	33	38
Grazing for horses scarce	2	79	0	24
Campfire remains	20	16	33	18
Firewood scarce	18	21	33	18
Damaged trees	15	4	33	12
Other	26	10	33	21

[1] $n = 97$; $\chi^2 = 73.9205$; $p = 0.001$.

About half of all campers report at least sometimes "purposely leaving the trail to look for a campsite," especially hikers (58 percent). About two-thirds of the respondents generally select established, previously used campsites (table 12). Only 16 percent generally camped on new, previously unused sites, while 19 percent used both types of campsites. Hikers and horse users were similar, but rafters were very different, usually camping on new sites, and the difference was statistically significant.

Factors Related to Location Choices

Importance of Wilderness—Visitors who report that wilderness is more important to them would be expected to invest more time and effort in the decision process (longer lead times, more consideration of alternatives, more off-trail campsite searching, more seeking information from the Forest Service), but this was true only to a limited extent.

Most visitors (78 percent) reported that wilderness was "extremely important" to them, the strongest answer available. Another 18 percent answered "very important," leaving only 4 percent for weaker responses. This limited variation hampers analysis of the effects of the importance of wilderness.

The visitors who assign higher importance tend to be a little more involved in location choices and to plan slightly farther in advance, but the differences are not statistically significant. Similarly, there are weak, statistically nonsignificant tendencies for persons for whom wilderness is most important more often to consider other trailheads and campsites, and to reject campsites because of location but not condition. Searching off the trail for campsites is more common by persons reporting the highest levels of wilderness importance, but the relationship is not statistically significant. Camping on previously unused campsites also is more common by those for whom wilderness is most important (statistically significant), which implies more effort to locate potential campsites.

Persons who value wilderness highly were slightly more likely to contact the Forest Service (and to use guidebooks), but the relationship is not statistically significant.

Table 11—Campsite location characteristics that caused rejection of campsites; percentage of total rejecting a campsite because of location for each method of travel[1]

Location characteristics causing rejection	Method of travel			Total
	Hikers	Horse users	Rafters	
Too close to trail	55	38	50	49
Water too far away	42	56	50	47
Too close to occupied camp	30	39	75	34
Poor view	20	18	25	20
Other	23	16	25	22

[1] $n = 144$; $\chi^2 = 7.0998$; $p = 0.50$.

Importance of Solitude—Visitors who place a high value on solitude would be expected to invest more in choices, and especially, to consider alternative places more than do other visitors, but, again, the relationship is weak.

Visitors were asked, "What were your main reasons for choosing this kind of area (a roadless wilderness) instead of some other kind of recreation area?"—indicating the importance they attached to each of 10 possible reasons, one of which was "to experience solitude." About 61 percent answered solitude was "very important," 25 percent "somewhat important," and 13 percent "not important." These responses were used to classify visitors in terms of the importance of solitude.

Visitors who placed a high importance on solitude were significantly more likely to be involved in choosing trailheads than those who considered solitude less important, and slightly less likely to have an outfitter make the choice. Planning lead times, contrary to expectations, were significantly *shorter* for high-solitude visitors. This appears to be partly because outfitter guests have long planning lead times but low solitude importance (although outfitter guests report high general wilderness importance).

High-solitude-importance visitors more often considered alternative trailheads and campsites, but neither relationship is statistically significant. Solitude seekers also rejected campsites a little more for both condition and location reasons, but not significantly so. They were more likely to report that a location was rejected because it was too close to other campsites or to a trail, although this difference fell just short of statistical significance. Solitude seekers also searched off trail for campsites and contacted the Forest Service for information more often, but again numbers fell short of statistical significance

It appears that those who say solitude is very important to them do not do much more than other visitors to try to find solitude.

Campsite Solitude—Visitors who prefer no one else camped near them seem likely to reject campsites because of location close to other campsites or trails more often than do those who prefer some other campers nearby, and study results confirm this relationship.

Most campers (84 percent) preferred no one else camped within sight or sound of their campsite. The two measures, importance of solitude and standards for campsite solitude, are similar, but are only moderately correlated, with significant chi-square values, but the value of gamma is only 0.35. (Gamma is a measure of correlation for ordinal data, and is interpreted like a conventional Pearson correlation coefficient.) As expected, campers preferring full solitude did reject campsites because of location more often than those who preferred some other campers present. They did so significantly more often because of occupied camps nearby (almost four times as often), and more often because a trail was too close, 52 percent compared to 32 percent (nonsignificant at 0.05).

The visitors who wanted isolated camps also were significantly more likely to search off trail for a place to camp, and to choose a trailhead because it led to less crowded areas. They also had significantly longer planning lead times.

The expected relationship is generally supported by the data.

Trip Length—Longer trips would be expected to involve more investment in choices than do shorter trips; and, in fact, they do.

Visitors taking longer trips had statistically significantly longer planning lead times. Most trips of a week or more were planned at least a month in advance, while only one-fourth of trips of 3 nights or less were planned a month ahead. People on longer trips were more likely than people on short trips to choose trailheads and areas reached by them because they were less crowded and less likely to choose because a trail was close or easy. There was no association between trip length and consideration of alternative trailheads.

People on longer trips were significantly more likely to contact the Forest Service for information about the wilderness. More than one-third of people on trips of a week or more contacted the agency, but only 22 percent of those on shorter trips did. Only 7 percent of 1-night campers contacted the Forest Service. People on longer trips were more likely to write, while those on short trips called on the telephone more often.

People on long trips significantly more often rejected campsites because of condition, but not because of location. Visitors on long trips reported they slightly less often took the first available campsite (not statistically significantly so). There was a nonsignificant tendency for people on longer trips to search more off trail for campsites. People on long trips were significantly more likely to camp on previously unused sites, which usually requires extra effort to locate suitable places.

Novelty vs. Familiarity—Novelty seekers (those who prefer to visit new areas) would seem likely to invest more in the choice process than do familiarity seekers (those who prefer to continue visiting the same areas), but this is not what was found. Furthermore, it would seem probable that hunters are more often familiarity seekers than are other visitors, and horse travelers are more often familiarity seekers than are hikers, and these two more specific relationships turned out to be true.

Novelty seekers were expected to have longer planning lead times than people who usually visit places they have been to before, but the opposite was true, and statistically significant. Novelty seekers do use maps more than twice as often as other visitors, and, perhaps obviously, were far

more likely to choose a trail because it led to a new area. They consider alternative trailheads more, but not significantly so. They contact the Forest Service significantly more often. Familiarity seekers reject campsites due to both condition and location less than novelty seekers (many visitors said they did some of both—seeking new areas and revisiting areas). Novelty seekers were more likely to reject a campsite because it was too close to another occupied campsite and much more likely to do so because it was too close to a trail. They were not more likely to search off trail for a campsite, nor much more likely to camp on previously unused sites.

There is little support for the general relationship. Perhaps the novelty seekers are more spontaneous and do less detailed planning than expected.

The expectation that hunters are more often familiarity seekers stems from the assumption that their motivation for visiting wilderness is more narrowly focused on wildlife abundance and less on scenery or other qualities where variety would seem more important. The data show this; 24 percent of hunters say they prefer to revisit the same areas, compared to only 13 percent of nonhunters, and 20 percent prefer new areas, while 25 percent of nonhunters do. (Most of both types say they do some of both.) But the relationship does not quite reach significance at the 0.05 probability level.

The belief that horse travelers are more often familiarity seekers is based on the idea that areas suitable for horse travel and grazing are limited and exploration of new areas more difficult, favoring sticking with trips that have worked well before. As expected, visitors traveling with horses are significantly more likely to be familiarity seekers than are hikers.

Previous Experience—One would expect experienced wilderness visitors who are newcomers to the Bob Marshall Wilderness complex to invest more in the choice process than either beginners or veterans of the Bob Marshall, and generally this proved to be true.

Visitors were classified into three experience groups: (1) those who had visited other wildernesses before, but not the Bob Marshall Wilderness complex ("experienced newcomers"), (2) those on their very first wilderness trip ("beginners"), and (3) those who had visited the Bob Marshall complex before ("veterans"). Veterans were the largest group, 47 percent of all visitors, followed by experienced newcomers, 32 percent, and beginners, 22 percent.

Experienced newcomers are expected to make more effort to select locations because they have some general wilderness experience so they know what types of information are relevant and have developed views about site acceptability, both of which many beginners may lack. Veterans often are visiting areas they are already familiar with, and all have some general experience with the Bob Marshall complex so they need less information and also may have formed more realistic standards for acceptable sites, settling more readily for what is usually available.

How far ahead visitors chose entry points does not agree with the expectation. Experienced newcomers had significantly shorter lead times, veterans longer, and beginners intermediate. The variable role of outfitters is probably part of the reason for this pattern. Beginners used outfitters the most, and experienced newcomers the least, significantly so. Arrangements with an outfitter normally are made well in advance of a trip.

Experienced newcomers were far more likely to study maps to select entry points—63 percent doing so compared to only 33 percent of veterans. They also were twice as likely to consider alternate trailheads as were other experience categories. They contacted the Forest Service a little more than beginners (32 percent compared to 28 percent), significantly more than veterans (18 percent). They also wrote Forest Service offices the most, and most often contacted the agency in two or three different ways (visit, telephone, write).

Experienced newcomers were significantly more likely to reject a campsite because of condition (37 percent), compared to only 13 percent of beginners. They also were significantly more likely to reject a campsite because of location (47 percent), compared to beginners (only 24 percent). They were significantly more likely to search off trail for campsites, and beginners least likely. Veterans were intermediate in all of these instances. There were no differences among experience types in frequency of use of existing or previously unused campsites.

Except for planning lead time, the observed relationships largely support the expectations about the role of previous experience.

Lead Time—The longer the decision lead time, the more likely it seems that visitors would seek information from the Forest Service, but there is no significant difference in contact with the agency associated with planning lead time. In fact, those who decide "on the way" are most likely to contact the agency. Perhaps they are forced to do so because many have not taken the time to study maps or contact friends for information.

Method of Travel and Use of New or Established Campsites—Backpackers are expected to be more likely to choose campsites not previously camped on than are horse travelers, but it does not appear that they do.

The expectation is that backpackers are able to use smaller, more varied sites that are not well suited to holding or grazing horses, and that most of the sites suitable for horse users already have been found and used over the years. There also may be differences in attitudes and preferences about desired campsite conditions and isolation that lead more backpackers to choose previously unused sites.

The data do not support the expectation (table 12). There are statistically significant differences among travel method categories, but they stem mainly from the rafters, who usually camped on new sites.

Experience and Personal Involvement in Choices—Persons who choose or help choose the trailhead their group uses are expected to be more experienced (experienced both generally and in the BMWC) than those who are not involved in choices, and this is what was found.

This expectation is common sense, and follows logically from the general theoretical perspective on recreational site choices described earlier. The data strongly support the expected relationship. Persons who had visited any

Table 12—Proportion of campers reporting use of new sites, not camped on before, or already established sites, previously camped on; percentage of total for each method of travel[1]

Generally used campsites that:	Method of travel			
	Hikers	Horse users	Rafters	Total
Had not been camped on before	15	14	53	16
Had been camped on before	67	65	33	65
Both types of campsites	18	21	14	19

[1] $n = 363$; $\chi^2 = 16.6302$; $p = 0.005$.

wilderness before were much more likely to be involved in choice of trailheads than beginners (88 percent compared to 65 percent). Those involved in location choices were also significantly more likely to have visited the Bob Marshall Wilderness complex before, 67 percent compared to 46 percent for those not choosing. The more previous visits, the more likely visitors were to participate in location choices. This relationship was significant (chi-square probability less than 0.005, and gamma 0.50). Those choosing had much more site-specific experience also, giving "been there before" as a reason for choosing an entry point significantly more often than other visitors. People involved in choices also began visiting wilderness at younger ages than those not helping choose.

Other Factors Related to Choices

Several other visitor characteristics might be related to location choices. Residence in Montana or out of State is one that has not been examined, and hunters have been compared to nonhunters only briefly, so far.

Residence—Visitors from outside Montana have significantly less experience in wilderness in general, and the Bob Marshall complex in particular, compared to residents of the State. Significantly more out-of-staters travel with outfitters and, related to this, fewer personally choose trailheads or campsites. Out-of-state visitors tend to be novelty seekers significantly more than residents. Their lead time on location choices goes to extremes compared to Montanans'—either very short or very long. They use maps, guidebooks, and "rangers" significantly more, and contact the Forest Service more, significantly more often writing to the agency. They choose trailheads mainly because of good hunting and fishing and because of less crowding. Nonresidents were only slightly more likely than Montanans to reject a campsite because of condition, but far more likely to do so because of horse manure. They were no more likely to pass up a campsite because of location, and their reasons were not much different than residents. They also were no more likely to search off trail for a campsite.

Hunting Participation—Hunters differ from nonhunters in how they deal with location choices in many ways. The differences are similar to those between hikers and horse users described earlier. This is not surprising because almost all hunters in the Bob Marshall Wilderness complex use horses, but the differences tend to be greater for hunters, suggesting that summer horse users are somewhat different from hunting season horse users.

Hunters have significantly more Bob Marshall experience than nonhunters, but about the same amount of general wilderness experience. Hunters less often choose trailheads, and outfitters choose for them significantly more than for nonhunters. They have longer decision lead times. They use all information sources less, using almost none except "been there before," maps, and friends. They choose trails mainly (61 percent) for hunting opportunities, and, compared to nonhunters, far less often cite "less crowded" or "new area." Hunters consider alternate trailheads about as much as nonhunters, but reject trails because of difficulty much more.

Hunters tend to contact the Forest Service less (nonsignificantly), and, if they contact the agency at all, usually do so in person, significantly less often writing or telephoning than nonhunters. They consider alternative campsites significantly less, and reject campsites due to condition less, and only because of scarce grazing (table 13). Hunters also were significantly less likely to pass up a campsite for location shortcomings, and almost never for reasons related to isolation and solitude. They were significantly less likely to search off trail for a campsite than were nonhunters, but were more likely to camp on previously unused places (25 percent compared to 15 percent).

Summary—Most visitors are looking for new places to visit, at least on some trips. Few contact the Forest Service. Most visitors are involved in location choices—not just party leaders. Planning usually begins a few weeks or more before the trip, particularly for longer trips. Maps are the main source of new information. Many features attract visitors to the places they choose, but good hunting and fishing head the list. Many visitors weigh several alternative entry points and campsites before they make a final choice. Campsite location shortcomings result in more rejection than problems with conditon, but hikers and horse users differ sharply in how they respond to various campsite conditions.

Table 13—Campsite conditions that caused rejection of campsites; percentage of total hunters and nonhunters rejecting a campsite because of condition[1]

Conditions causing rejection	Hunter	Nonhunter	Total
Horse manure	0	45	39
Bare ground, erosion	18	41	38
Litter	28	39	38
Grazing for horses scarce	64	18	24
Campfire remains	0	21	18
Firewood scarce	19	18	18
Damaged trees	0	13	12
Other	9	22	21

[1] $n = 97$; $\chi^2 = 22.0476$; $p = 0.005$.

The process of choosing locations is complex and variable. The theoretical perspective used here assumes visitors have only partial knowledge and process information in ways that usually are not rigorous nor always strictly rational. Thus, it is probably not surprising that some expectations were supported by the data and some were not. People who placed a high importance on wilderness and on solitude as a wilderness characteristic tend to put a little more effort into choosing locations, but the relationships are not strong. Visitors who want a campsite out of sight and sound of other campers do reject campsites that do not offer seclusion significantly more than those who prefer some camping neighbors. The longer the trip, the more effort campers make in choosing locations.

People who prefer to visit new areas do not put more effort into choosing locations. Horse users and hunters are more inclined to revisit old familiar places than are backpackers. Experience plays a significant role in how people make location choices, with people who are experienced wilderness visitors but new to the particular area putting the most effort into choices. Contact with the Forest Service is rare regardless of how far ahead people plan trips. Choice of new or previously used campsites differs little among hikers and horse users. The more experience visitors have, the more they participate in choosing wilderness locations.

Overall, the theoretical structure suggested here seems to account for much but not all of the results. There clearly is lots of room for improving the theory and collecting data that better measure important decisions by visitors.

MANAGEMENT IMPLICATIONS

What implications can be drawn from these results that would aid managers in influencing visitor behavior in ways to reduce impacts and improve the quality of visitors' experiences?

Research on visitor location choices implies a few new management actions and provides additional support for many actions recommended earlier, based on other types of studies, and already employed by many managers. Most of the implications relate mainly to information and education programs—some in general, some particularly for minimum-impact (or "no trace") use, and others mainly for efforts to redistribute visitor use. Several implications relate to management of trails and campsites.

Implications for Information/ Education Programs

A low proportion—only about one-fourth—of all visitors contact the managing agency for information about the area to make location and other decisions, and the contact rate is even lower for horse users and hunters. Most contacts are made by visiting a Forest Service District Ranger Station or other office. This implies the need to treat every public contact as very valuable, and too rare to squander. Contacts have the potential to affect many future trips, especially for persons who usually revisit the same parts of a wilderness, and information may spread through networks of friends and thus indirectly reach some of the large majority who do not contact managers.

The low contact rate also implies a need to provide incentives for more people to contact the agency voluntarily, especially horse users and hunters who combine particularly low contact rates with high potential for causing impacts. Many contacts are in person. Knowledgeable agency people are needed who display the "Good Host" attitude and are dedicated to raising "customer satisfaction" as promoted by the Forest Service's current National Recreation Strategy. Good written materials are also essential, especially for written contacts. If contacts are really useful, as well as pleasant, the word will get out, and more visitors will decide it is worth their time to check with the agency. Stationing an employee at well-used trailheads could be effective and worthwhile.

Visitors making longer trips more often contacted the Forest Service for information. This is clearly good, because the longer trips are more significant and have more potential for impact.

Maps are the most used source of information. This means the agency needs to have good maps available, with all key information on them, and use maps as a major information and education tool.

Many wilderness trips are planned well in advance. This reemphasizes how important it is to reach visitors at home, during the planning process. This is especially true for efforts to redistribute use (Lime and Lucas 1977; Lucas 1981), but also for minimum-impact messages, particularly for practices that require specific equipment, such as stoves to reduce campfire impacts, water bags or collapsible jugs to make camping farther from water feasible, or high-line ropes for tethering horses away from trees. Video tapes, either loaned or given away, may offer a powerful new technology for reaching visitors at home. Most families now have VCR's; tapes are inexpensive; well-done programs could hold attention better than written materials; and people can view them at times convenient to them, perhaps several times. Research to test the effectiveness of video tapes would be valuable.

The people who make location decisions tend to be the more experienced visitors. This has both good and bad implications for information and education. Good: decision-makers have general familiarity with wilderness travel and camping so messages do not all necessarily have to start from scratch. Bad: information and education often need to overcome previous ideas, some of which may be erroneous.

Solitude, especially campsite solitude, seems important to many visitors, as reflected in reported choices of trails and campsites. This adds some support to conclusions based on responses to questions about solitude in the abstract.

People who feel wilderness, solitude, and campsites isolated from other campers are most important all put more effort into location decisions. This probably makes them the easiest to reach with information *and* education and to influence. This may provide an opportunity to aid them in finding the degree of solitude they seek. But others who are more difficult to reach and influence may have higher potential for adverse impacts.

Implications for Minimum-Impact Education

Horse users and hunters have different, less-demanding ideas about acceptable wilderness campsite conditions. They pass up campsites less often, and primarily for reasons related to functional, utilitarian aspects, not minimum impact. They appear to be relatively insensitive to many types of impacts stressed in current minimum-impact messages, impacts which bother other types of visitors. This poses a challenge to managers to motivate horse users and hunters more effectively to change or reduce their behaviors that cause bare ground, damaged trees, and horse manure accumulations in campsites.

Horse manure in camps is the leading reason why backpackers reject campsites, but horse users seem to accept it or ignore it. Minimum-impact education should stress ways of holding horses outside camps, scattering "meadow muffins," and also could inform backpackers where to look for campsites not used by parties with horses.

Firerings do not seem to be a serious problem in the view of most visitors, and seldom affect location choices. Perhaps minimum-impact education should encourage leaving one small, clean firering rather than eliminating all traces, which often results in repeated rebuilding of fires in different places, spreading impacts (Cole 1989). This might be a good compromise that seems to be consistent with visitor behavior and values.

Tree damage also is not widely perceived as a serious problem, and affects few campsite choices, especially by horse users and hunters. Tree damage, far more than firerings, has serious, long-lasting, cumulative effects. The challenge is to raise visitor awareness of tree damage as a problem and of the importance of reducing it.

Implications for Redistributing Recreational Use

Many visitors seek new places much of the time, and these variety seekers contact the Forest Service more than other visitors. If managers want to encourage some visitors to shift their use to specific places, many visitors should be receptive, because they are already looking for variety. This is most true of backpackers; there is a bigger challenge in redistributing horse users and hunters.

Many location choices for horse users and hunters are made for them by outfitters. If major redistribution of horse and hunter use is desired, managers will need to work with outfitters to achieve appropriate use distributions.

Fishing and hunting are powerful attractions, and they influence many location decisions, along with many other location characteristics. If information is meant to redistribute much use, it must cover a variety of location characteristics, and excluding information on hunting and fishing opportunities seriously weakens the effectiveness of such efforts.

Off-trail searching for campsites and considering alternative campsites are moderately common behavior, but if managers think encouraging campers to choose campsites that are more isolated or durable is desirable, they need to encourage more such behavior.

A common reason for rejecting campsites is "too far from water." This implies a possible conflict with programs requiring camping a specific distance from shorelines. There is a need to reexamine the reasons and necessity for such regulations, and if they are deemed essential, to explain them well to motivate compliance by visitors.

Rigid, preselected campsite itineraries also do not seem to match the actual behavior of many wilderness campers. They fairly often look over and reject campsites on the ground, something that is impossible with advance choice in a Ranger Station. This supports other research reporting low popularity of these inflexible systems (Lucas 1985a).

Implications for Management of Trails and Campsites

Visitors' reasons for choosing and rejecting trails clearly show a diverse market. There is demand for easy as well as more challenging trails, both easily accessible and more remote trailheads, and for loop trails and also destination trails. The concepts underlying the Recreational Opportunity Spectrum (ROS) and Limits of Acceptable Change (LAC) seem vindicated.

Campsite-solitude seekers often reject campsites because of other nearby occupied campsites. This has implications for information programs to aid such people in finding more isolated places to camp, but it also implies another benefit from programs to eliminate some closely spaced campsites, often surplus for even maximum use (Cole 1982), and rehabilitating such sites.

Wilderness visitors choose trails and campsites in complex and variable ways. As a result, few simple, "cookbook" recommendations are possible, but the descriptions and analyses of the location choice process in this paper should help wilderness managers strengthen their programs.

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The process of selecting trailheads and campsites is described for visitors to the Bob Marshall Wilderness complex in Montana. Factors influencing decisions by different types of visitors are analyzed. Implications, particularly for information and education programs, are presented.

KEYWORDS: choice behavior, location choices, trailheads, Bob Marshall Wilderness

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